

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) An information recording medium comprising:

a recording area to record therein record information by irradiating laser light thereto; and

a recording control area to record therein control information for correction-controlling a laser power in accordance with a recording position in said recording area, the control information being obtained by performing running OPC (Optimum Power Calibration) which is performed in parallel with the recording of the record information.

2. (Original) The information recording medium according to claim 1, wherein the control information indicates an association between information which represents the recording position in said recording area and information which represents recording sensitivity in the recording position.

3. (Original) The information recording medium according to claim 1, wherein the control information indicates an association between information which represents the recording

position in said recording area and information which represents an optimum laser power in the recording position.

4. (Original) The information recording medium according to claim 1, wherein the control information indicates a correlation relationship between the recording position in said recording area and an optimum laser power in the recording position.

5. (Currently Amended) An information recording apparatus comprising:

a recording device for recording record information by irradiating laser light onto ~~said~~ an information recording medium comprising: a recording area to record therein record information by irradiating laser light thereto; and a recording control area to record therein control information for correction-controlling a laser power in accordance with a recording position in said recording area according to claim 1;

a correcting device for correcting the control information recorded in said recording control area of said information recording medium, on the basis of a result of running OPC (Optimum Power Calibration) which is performed in parallel with the recording of the record information; and

an optimizing device for optimizing a laser power, on the basis of at least one of the control information recorded in

said recording control area of said information recording medium  
and the control information corrected by said correcting device.

6. (Original) The information recording apparatus according to claim 5, wherein said optimizing device roughly estimates the control information at a recording position for which the corresponding control information does not exist, on the basis of the control information recorded in said recording control area.

7. (Currently Amended) An information recording apparatus comprising:

a first recording device for irradiating laser light onto an information recording medium and for recording record information onto said information recording medium;

a control information generating device for obtaining an optimum laser power according to a recording position of said information recording medium and for generating control information which indicates an association between information which represents the recording position and information which represents the optimum laser power;

a correcting device for correcting the control information generated by said control information generating device, on the basis of a result of running OPC (Optimum Power

Calibration) which is performed in parallel with the recording of the record information;

a second recording device for recording at least one of the control information generated by said control information generating device and the control information corrected by said correcting device onto said information recording medium; and

a controlling device for controlling a laser power of the laser light irradiated onto said information recording medium, on the basis of the control information recorded by said second recording device.

8. (Original) The information recording apparatus according to claim 7, wherein said second recording device records the control information generated by said control information generating device, onto said information recording medium.

9. (Original) The information recording apparatus according to claim 7, wherein said control information generating device generates the control information, on the basis of a calibration value of a laser power obtained by performing running OPC (Optimum Recording Calibration).

10. (Original) The information recording apparatus according to claim 7, wherein said control information generating

device generates the control information corresponding to each predetermined area of said information recording medium.

11. (Original) The information recording apparatus according to claim 7, wherein said control information generating device generates the control information corresponding to a recording linear velocity of said information recording medium.

12. (Original) The information recording apparatus according to claim 7, wherein

said information recording medium comprises a plurality of recording layers, and

said controlling device controls the laser power irradiated to another recording layer, on the basis of the control information obtained in one recording layer, in a case in which a target, to which said recording device performs recording operation, is changed from the one recording layer to the another recording layer out of the plurality of recording layers.

13. (Original) The information recording apparatus according to claim 7, wherein

said information recording medium comprises a plurality of recording layers, and

said control information generating device generates the control information in another recording layer, on the basis

of the control information obtained in one recording layer, in a case in which a target, to which said recording device performs recording operation, is changed from the one recording layer to the another recording layer out of the plurality of recording layers.

14. (Currently Amended) An information recording method comprising:

a recording process of recording record information by irradiating laser light onto ~~said~~ an information recording medium ~~according to claim 1~~ comprising: a recording area to record therein record information by irradiating laser light thereto; and a recording control area to record therein control information for correction-controlling a laser power in accordance with a recording position in said recording area;

a correcting process of correcting the control information recorded in said recording control area of said information recording medium, on the basis of a result of running OPC (Optimum Power Calibration) which is performed in parallel with the recording of the record information; and

an optimizing process of optimizing a laser power, on the basis of at least one of the control information recorded in said recording control area of said information recording medium and the control information corrected in said correcting process.

15. (Currently Amended) An information recording method comprising:

a first recording process of irradiating laser light onto an information recording medium and of recording record information onto said information recording medium;

a control information generating process of obtaining an optimum laser power according to a recording position of said information recording medium and of generating control information which indicates an association between information which represents the recording position and information which represents the optimum laser power;

a correcting process of correcting the control information generated in said control information generating process, on the basis of a result of running OPC (Optimum Power Calibration) which is performed in parallel with the recording of the record information;

a second recording process of recording at least one of the control information generated in said control information generating process and the control information corrected in said correcting process onto said information recording medium; and

a controlling process of controlling a laser power of the laser light irradiated onto said information recording medium, on the basis of the control information recorded in said second recording process.

16. (Currently Amended) An information recording / reproducing apparatus comprising:

an information recording apparatus ~~according to claim~~  
~~[[5]]~~ comprising:

a recording device for recording record information by irradiating laser light onto an information recording medium comprising: a recording area to record therein record information by irradiating laser light thereto; and a recording control area to record therein control information for correction-controlling a laser power in accordance with a recording position in said recording area;

a correcting device for correcting the control information recorded in said recording control area of said information recording medium, on the basis of a result of running OPC (Optimum Power Calibration) which is performed in parallel with the recording of the record information; and

an optimizing device for optimizing a laser power, on the basis of at least one of the control information recorded in said recording control area of said information recording medium and the control information corrected by said correcting device;  
and

a reproducing device for reproducing the record information recorded on said information recording medium.



17. (Currently Amended) An information recording / reproducing apparatus comprising:

~~said~~ an information recording apparatus according to claim 7 comprising:

a first recording device for irradiating laser light onto an information recording medium and for recording record information onto said information recording medium;

a control information generating device for obtaining an optimum laser power according to a recording position of said information recording medium and for generating control information which indicates an association between information which represents the recording position and information which represents the optimum laser power;

a correcting device for correcting the control information generated by said control information generating device, on the basis of a result of running OPC (Optimum Power Calibration) which is performed in parallel with the recording of the record information;

a second recording device for recording at least one of the control information generated by said control information generating device and the control information corrected by said correcting device onto said information recording medium; and

a controlling device for controlling a laser power of the laser light irradiated onto said information recording

medium, on the basis of the control information recorded by said second recording device; and

a reproducing device for reproducing the record information recorded on said information recording medium.

18. (Currently Amended) An information recording / reproducing method comprising:

~~said~~ an information recording method ~~according to claim 14~~ comprising:

a recording process of recording record information by irradiating laser light onto an information recording medium comprising: a recording area to record therein record information by irradiating laser light thereto; and a recording control area to record therein control information for correction-controlling a laser power in accordance with a recording position in said recording area;

a correcting process of correcting the control information recorded in said recording control area of said information recording medium, on the basis of a result of running OPC (Optimum Power Calibration); which is performed in parallel with the recording of the record information and

an optimizing process of optimizing a laser power, on the basis of at least one of the control information recorded in said recording control area of said information recording medium

and the control information corrected in said correcting process;  
and

a reproducing process of reproducing the record information recorded on said information recording medium.

19. (Currently Amended) An information recording / reproducing method comprising:

~~said~~ an information recording method ~~according to claim~~  
15 comprising:

a first recording process of irradiating laser light onto an information recording medium and of recording record information onto said information recording medium;

a control information generating process of obtaining an optimum laser power according to a recording position of said information recording medium and of generating control information which indicates an association between information which represents the recording position and information which represents the optimum laser power;

a correcting process of correcting the control information generated in said control information generating process, on the basis of a result of running OPC (Optimum Power Calibration) which is performed in parallel with the recording of the record information;

a second recording process of recording at least one of the control information generated in said control information

generating process and the control information corrected in said  
correcting process onto said information recording medium; and

a controlling process of controlling a laser power of  
the laser light irradiated onto said information recording  
medium, on the basis of the control information recorded in said  
second recording process; and

a reproducing process of reproducing the record  
information recorded on said information recording medium.

20. (Currently Amended) A computer program ~~for record~~  
~~control to control~~ product in a computer-readable medium for  
tangibly embodying a program of instructions executable by a  
computer provided for ~~the~~ an information recording apparatus  
~~according to claim 5,~~ to make the computer function as at least  
one portion of ~~said~~ a recording device, a correcting device, and  
said an optimizing device,

said information recording apparatus comprising:

said recording device for recording record information  
by irradiating laser light onto an information recording medium  
comprising: a recording area to record therein record information  
by irradiating laser light thereto; and a recording control area  
to record therein control information for correction-controlling  
a laser power in accordance with a recording position in said  
recording area;

said correcting device for correcting the control information recorded in said recording control area of said information recording medium, on the basis of a result of running OPC (Optimum Power Calibration) which is performed in parallel with the recording of the record information; and

said optimizing device for optimizing a laser power, on the basis of at least one of the control information recorded in said recording control area of said information recording medium and the control information corrected by said correcting device.

21. (Currently Amended) A computer program ~~for record control to control~~ product in a computer-readable medium for tangibly embodying a program of instructions executable by a computer provided for ~~the~~ an information recording apparatus ~~according to claim 7~~, said computer program making the computer function as at least one portion of ~~said~~ a first recording device, ~~said~~ a control information generating device, ~~said~~ a correcting device, ~~said~~ a second recording device, and ~~said~~ a controlling device,

said information recording apparatus comprising:

said first recording device for irradiating laser light onto an information recording medium and for recording record information onto said information recording medium;

said control information generating device for obtaining an optimum laser power according to a recording

position of said information recording medium and for generating control information which indicates an association between information which represents the recording position and information which represents the optimum laser power;

said correcting device for correcting the control information generated by said control information generating device, on the basis of a result of running OPC (Optimum Power Calibration) which is performed in parallel with the recording of the record information;

said second recording device for recording at least one of the control information generated by said control information generating device and the control information corrected by said correcting device onto said information recording medium; and

said controlling device for controlling a laser power of the laser light irradiated onto said information recording medium, on the basis of the control information recorded by said second recording device.

22. (Currently Amended) A computer program ~~for record / reproducing control to control~~ product in a computer-readable medium for tangibly embodying a program of instructions executable by a computer provided for the information recording / reproducing apparatus ~~according to claim 18~~, said computer program making the computer function as at least one portion of

~~said~~ an information recording apparatus and ~~said~~ a reproducing device,

said information recording / reproducing apparatus comprising:

said information recording apparatus comprising:

a recording device for recording record information by irradiating laser light onto an information recording medium comprising: a recording area to record therein record information by irradiating laser light thereto; and a recording control area to record therein control information for correction-controlling a laser power in accordance with a recording position in said recording area;

a correcting device for correcting the control information recorded in said recording control area of said information recording medium, on the basis of a result of running OPC (Optimum Power Calibration) which is performed in parallel with the recording of the record information; and

an optimizing device for optimizing a laser power, on the basis of at least one of the control information recorded in said recording control area of said information recording medium and the control information corrected by said correcting device; and

said reproducing device for reproducing the record information recorded on said information recording medium.

23. (Currently Amended) A computer program ~~for record~~  
~~/ reproducing control to control~~ product in a computer-readable  
medium for tangibly embodying a program of instructions  
executable by a computer provided for the information recording /  
reproducing apparatus according to claim 19, said computer  
program making the computer function as at least one portion of  
~~said~~ an information recording apparatus and ~~said~~ a reproducing  
device,

said information recording / reproducing apparatus  
comprising:

said information recording apparatus comprising:

a first recording device for irradiating laser light  
onto an information recording medium and for recording record  
information onto said information recording medium;

a control information generating device for obtaining  
an optimum laser power according to a recording position of said  
information recording medium and for generating control  
information which indicates an association between information  
which represents the recording position and information which  
represents the optimum laser power;

a correcting device for correcting the control  
information generated by said control information generating  
device, on the basis of a result of running OPC (Optimum Power  
Calibration) which is performed in parallel with the recording of  
the record information;



a second recording device for recording at least one of the control information generated by said control information generating device and the control information corrected by said correcting device onto said information recording medium; and

a controlling device for controlling a laser power of the laser light irradiated onto said information recording medium, on the basis of the control information recorded by said second recording device; and

said reproducing device for reproducing the record information recorded on said information recording medium.